

CLAIMS:

Sub B4
5 1. An optical scanning device for scanning an information layer of an optically scannable information carrier, which scanning device is provided with a radiation source, an optical lens system with an optical axis for focusing a radiation beam supplied, in operation, by the radiation source into a scanning spot on the information layer, and an actuator by means of which the lens system can be displaced with respect to a stationary part of the scanning device at least in a direction parallel to the optical axis, the actuator being provided with an electric coil system, which is arranged in a fixed position with respect to the lens system, and a magnetic system which is arranged in a fixed position with respect to the stationary part, characterized in that the magnetic system, viewed parallel to an X-direction extending perpendicularly to the optical axis, is arranged in its entirety next to and outside the coil system, at least a part of the coil system being situated in a magnetic stray field of the magnetic system.

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15 2. An optical scanning device as claimed in claim 1, characterized in that the magnetic system comprises a first part and a second part which are each arranged, in their entirety, next to and outside the coil system near, respectively, a first side of the lens system and a second side of the lens system which, viewed in a direction parallel to the X-direction, is opposite the first side, a first part of the coil system arranged near the first side, and a second part of the coil system arranged near the second side, being situated, at least partly, in
20 a magnetic stray field of, respectively, the first part and the second part of the magnetic system.

25 3. An optical scanning device as claimed in claim 2, characterized in that the first part and the second part of the magnetic system, and the first part and the second part of the coil system, viewed in a direction parallel to the X-direction, are symmetrically arranged with respect to the optical axis.

Sub A 17 4. An optical scanning device as claimed in claim 2 or 3, characterized in that the first part and the second part of the magnetic system each comprise at least a first and a

second permanent magnet which, viewed in a direction parallel to the optical axis, are arranged next to each other and have a direction of magnetization extending, respectively, parallel to the X-direction and parallel to an X'-direction opposite to the X-direction, while the first part and the second part of the coil system each comprise at least an electric coil having a first part and a second part, which are provided with wire portions extending perpendicularly to the X-direction and perpendicularly to the optical axis, said first and said second part of the coil of the first part of the coil system, viewed in a direction parallel to the X-direction, being arranged directly opposite, respectively, the first and the second magnet of the first part of the magnetic system, and said first and said second part of the coil of the second part of the coil system, viewed in a direction parallel to the X-direction, being arranged directly opposite, respectively, the first and the second magnet of the second part of the magnetic system.

5. An optical scanning device as claimed in claim 2 or 3, characterized in that the first part and the second part of the magnetic system each comprise at least two permanent magnets which, viewed in a direction parallel to the optical axis, are arranged next to each other and have a direction of magnetization extending, respectively, parallel to the X-direction and parallel to an X'-direction opposite to said X-direction, while the coil system comprises at least one electric coil having a first part and a second part, which are provided with wire portions extending perpendicularly to the X-direction and perpendicularly to the optical axis, said first part and said second part of the coil being arranged, viewed in a direction parallel to the X-direction, directly opposite, respectively, one of the two magnets of the first part of the magnetic system and one of the two magnets of the second part of the magnetic system.

6. An optical scanning device as claimed in claim 2 or 3, characterized in that the X-direction extends transversely to an information track present on the information layer, and in that the first part and the second part of the magnetic system each comprise at least two permanent magnets which, viewed parallel to the optical axis, are arranged next to each other and have a direction of magnetization extending, respectively, parallel to the X-direction and parallel to an X'-direction opposite to the X-direction, while the coil system comprises an electric coil having a first part and a second part, which are provided with wire portions extending perpendicularly to the X-direction and perpendicularly to the optical axis, said parts of the coil being arranged, viewed in a direction parallel to the optical axis, in a

transition region of the two magnets of, respectively, the first part and the second part of the magnetic system.

5 7. An optical scanning device as claimed in claim 4 or 5, characterized in that the
X-direction extends at least substantially parallel to an information track present on the
information layer, and in that the first part and the second part of the coil system each
comprise at least one further electric coil having a first part and a second part, which are
provided with wire portions extending parallel to the optical axis, the first part and the second
part of the further coil of the first part of the coil system, viewed in a direction parallel to the
10 X-direction, being arranged directly opposite, respectively, the first magnet and a
magnetizable part of the first part of the magnetic system, which magnetizable part, viewed
perpendicularly to the optical axis and perpendicularly to the X-direction, is situated next to
the first magnet, and the first part and the second part of the further coil of the second part of
the coil system, viewed in a direction parallel to the X-direction, being arranged directly
15 opposite, respectively, the first magnet and a magnetizable part of the second part of the
magnetic system, which magnetizable part, viewed perpendicularly to the optical axis and
perpendicularly to the X-direction, is situated next to the first magnet.

20 8. An optical player comprising an optical scanning device for scanning an
information layer of an optically scannable information carrier, and a table which can be
rotated about an axis of rotation, on which table the information carrier can be placed, said
scanning device being provided with a radiation source, an optical lens system with an
optical axis for focusing a radiation beam supplied, in operation, by the radiation source into
a scanning spot on the information layer, and an actuator by means of which the lens system
25 can be displaced with respect to a stationary part of the scanning device, at least in a direction
parallel to the optical axis, and a displacement device by means of which at least the lens
system of the scanning device can be displaced, with respect to the axis of rotation, mainly in
a radial direction, characterized in that the optical scanning device is an optical scanning
device as claimed in claim 1, 2, 3, 4, 5, 6 or 7.